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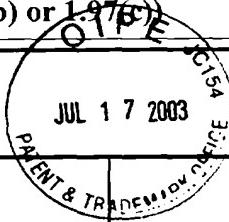
Applicant: BALAN, et al.  
Serial No: 10/009,375  
Filing Date: April 9, 2002  
For: GAMMA CAMERA AND CT SYSTEM  
Enclosures: (1) Transmittal of Information Disclosure Statement (1 page); (2) First Supplementary Information Disclosure Statement (2 pages); w/Supplementary Partial European Search Report, (6 pages), IDS Citation (1 page) & four cited references; (3) Acknowledgement Postcard.

Burden Hour Statement: This form is estimated to take 0.03 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
**(Under 37 CFR 1.97(b) or 1.97(c))**

Docket No.  
037/02528

In Re Application Of: **Adi BALAN et al.**



Serial No.  
10/009,375

Filing Date  
April 9, 2002

Examiner  
Unknown

Group Art Unit  
2878

Title: **GAMMA CAMERA AND CT SYSTEM**

Address to:

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Alexandria, VA 22313-1450

**37 CFR 1.97(b)**

1.  The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

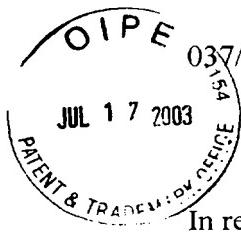
2.  The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:

the statement specified in 37 CFR 1.97(e);

**OR**

the fee set forth in 37 CFR 1.17(p).

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037/02528

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In regard to the application of: Adi BALAN et al.

Serial No : 10/009,375

Group Art Unit: 2878

Filed : April 9, 2002

Examiner: Unknown

For : Gamma Camera and CT System

**FIRST SUPPLEMENTARY INFORMATION DISCLOSURE STATEMENT**

Hon. Commissioner of Patents and Trademarks  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants respectfully direct the attention of the Examiner to additional art cited with respect to the present application.

The Examiner is respectfully requested to review and consider this art, in accordance with MPEP 2001.06, MPEP 1893.03(e) and MPEP 1893.03(g) and to indicate in the first office action that he has considered this art. Additionally, the Examiner is respectfully requested to cite those prior art publications mentioned in this application which the Examiner considers to be material or relevant to the present claims.

Further, in order to comply with discretionary regulations 37 C.F.R. §1.97 and §1.98, attached is an Equivalent to Form PTO-1449 listing the cited art. Also attached are copies<sup>1</sup> of the art. This art contains information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent.

Applicants wish to point out that items 1-4 were cited in a Supplementary Partial European Search Report of a corresponding EP Application No. 99925253.9. Copies of these items are attached hereto.

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<sup>1</sup> To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the national stage file. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached, it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such an equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited then none is known to the undersigned.

In accordance with MPEP Section 609 it is requested that each document cited [including any mentioned in Applicants' specification which is not repeated on the attached {or prior} PTO-1449 form(s) or equivalent(s) thereof] be given thorough consideration and be cited of record in the prosecution history of the present application by initialing on the PTO-1449 form or its equivalent, so that it will appear on the face of the patent issuing on the present application, even if the Examiner does not consider it sufficiently pertinent to use in a rejection, or otherwise does not believe that the guidelines for citation have been fully complied with.

The present Information Disclosure Statement is being submitted in compliance with 37 C.F.R. §1.56 as an Examiner might consider any cited document important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 C.F.R. §1.104(a), and in the course of such search will review for relevance every document cited on the attached form.

Early and favorable consideration is earnestly solicited.

Respectfully submitted,  
Adi BALAN et al.

*Paul Fenster*

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July 10, 2003  
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Add. Search

Datum/Date

22.04.03

Zeichen/Ref./Réf. BO 44991	Anmeldung Nr./Application No./Demande n°//Patent Nr./Patent No./Brevet n° 99925253.9-2213/IL9900300
Anmelder/Applicant/Demandeur//Patentinhaber/Proprietor/Titulaire Elgems Ltd.	

## COMMUNICATION

*Supplementary*

The European Patent Office herewith transmits the partial European search report under Rule 46(1) EPC relating to the above-mentioned European patent application.

Copies of the documents cited in the search report are enclosed.

The applicant's attention is drawn to the following:

The search Division informs the applicant that if the European search report is also to cover inventions other than the invention first mentioned in the claims, a further search fee must be paid for each of these inventions, within ONE MONTH after notification of this communication.

If the application has been filed up to 30 June 1999, the search fee in force before 01 July 1999 (EUR 869,--) or the equivalent applicable on the date of payment is payable.

This applies also to the search fees requested under Rule 46(1) EPC.  
See also OJ EPO 06/1999, 405.

The abstract was modified by the Search Division and the definitive text is attached to the present communication.

Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.



### Note to users of the automatic debiting procedure:

Unless the EPO receives prior instructions to the contrary, the search fee(s) will be debited on the last day of the period for payment. For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 02/1999.

REGISTERED LETTER



**SUPPLEMENTARY  
PARTIAL EUROPEAN SEARCH REPORT**  
under Rule 46, paragraph 1 of the European Patent Convention

DOCUMENTS CONSIDERED TO BE RELEVANT		Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages		
Y	DAVID W. TOWNSEND ET AL.: "The SMART scanner: a combined PET/CT tomograph for clinical oncology" IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD, 8 - 14 November 1998, pages 1170-1174, XP001146665 Toronto, Ont. Canada * the whole document *	24	G01T1/00 G01T1/20 G01T1/29 G01T1/164
A	---	1-6	
Y	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 01, 31 January 1997 (1997-01-31) -& JP 08 243100 A (GE YOKOGAWA MEDICAL SYST LTD), 24 September 1996 (1996-09-24) * abstract *	24	
A	---	1	
Y	US 4 630 202 A (MORI ISSEI) 16 December 1986 (1986-12-16) * column 1, line 5 - column 4, line 50 *	24	
A	---	1	G01T
	-/-		

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

1 The present partial European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.

Place of search	Date of completion of the search	Examiner
MUNICH	3 April 2003	Coda, R
CATEGORY OF CITED DOCUMENTS		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document		



SUPPLEMENTARY  
PARTIAL EUROPEAN SEARCH REPORT

Application Number

EP 99 92 5253

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 10, 31 October 1997 (1997-10-31) -& JP 09 154838 A (TOSHIBA CORP), 17 June 1997 (1997-06-17) * abstract * -----	1,24	
1			



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-6, 24

An apparatus for producing a nuclear medicine image of a subject, comprising: acquiring nuclear imaging data suitable to produce a nuclear tomographic image, the nuclear image data being acquired by a gamma camera head rotating about the subject, acquiring x-ray imaging data suitable to produce an x-ray tomographic image for attenuation correction of the gamma camera image, the X-ray imaging data being acquired by detectors irradiated by an X-ray source rotating around the subject for a plurality of rotations, averaging x-ray imaging data of a same view taken at different rotations of the X-ray source to produce averaged X-ray imaging data, reconstructing an attenuation corrected nuclear medicine image utilizing the nuclear imaging data and the averaged x-ray imaging data. The apparatus foresees also either the movement gated NM imaging mode or the cardiac gated NM imaging mode.

2. Claims: 7,8

A nuclear medicine camera having an X-ray imaging capability, having at least one gamma camera mounted on a gantry, an X-ray CT imager mounted on the same gantry, wherein the at least one gamma camera and the X-ray imager are capable of simultaneously rotating about a common axis at different rotation rates.

3. Claims: 9-21

A method of nuclear imaging, including acquiring attenuation data for correcting the nuclear image, comprising: acquiring nuclear emission data over a first axially extending portion of the body, determining an extent of a radioactive region of interest in the body, and acquiring transmission data over a second axially extending portion of the body, responsive to the determined extent.

4. Claims: 22, 23

A method of producing a nuclear medicine image of a subject, comprising: acquiring nuclear imaging data suitable to produce a nuclear tomographic image, the nuclear image data being acquired by a gamma camera head rotating about the subject, acquiring x-ray imaging data suitable to produce an x-ray tomographic image for attenuation correction of the gamma camera image, the X-ray imaging data being acquired by detectors irradiated by an X-ray source rotating around the subject, reducing the sensitivity of gamma camera head while the X-rays are produced, reconstructing an attenuation corrected nuclear medicine image utilizing the nuclear



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

imaging data and x-ray imaging data.

5. Claims: 26-35

Apparatus for producing a nuclear medicine image of a subject comprising: at least one gamma camera having at least one detector mounted on a gantry and capable of rotating about an axis and of acquiring nuclear imaging data suitable to produce a nuclear tomographic image, a CT X-ray imager including an X-ray source, mounted on the gantry, and capable of rotating about the axis and X-ray detectors separate from detectors of the gamma camera, acquiring X-ray imaging data suitable to produce an X-ray tomographic image for attenuation correction of the gamma camera image, and circuitry capable of reconstructing an attenuation corrected nuclear medicine image utilizing the nuclear imaging data and X-ray imaging data, the CT X-ray imager having a capability of producing a CT image having an RMS noise level of about 10 Hounsfield numbers or a resolution of about 2 1p/cm.

6. Claim : 25

Apparatus for producing attenuation corrected nuclear medicine images of patients, comprising: a plurality of gamma camera heads that acquire nuclear image data suitable to produce a nuclear tomographic image at a plurality of positions about an axis, at least one X-ray CT imager that acquires X-ray data suitable to produce an attenuation image for correction of the nuclear tomographic image at a plurality of positions about an axis, the X-ray CT imager comprising a stationary anode X-ray tube.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 92 5253

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-04-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
JP 08243100	A	24-09-1996		NONE		
US 4630202	A	16-12-1986	JP JP JP DE EP	1853793 C 2060332 B 59111738 A 3374652 D1 0113879 A2	07-07-1994 17-12-1990 28-06-1984 07-01-1988 25-07-1984	
JP 09154838	A	17-06-1997		NONE		

<b>INFORMATION DISCLOSURE CITATION</b>  (Use several sheets if necessary)	ATTY DOCKET NO.	SERIAL NO.
	<b>037/02528</b>	<b>10/009,375</b>
	APPLICANT(S) <b>Adi BALAN et al.</b>	
FILING <b>April 9, 2002</b>	GROUP <b>2878</b>	

## **U.S. PATENT DOCUMENTS**

## **FOREIGN PATENT DOCUMENTS**

**OTHER DOCUMENTS** (Including Author, Title, Date Pertinent Pages, Etc.)

	2	TOWNSEND, D. W. et al.; "The SMART scanner: a combined PET/CT tomograph for clinical oncology;" November 8-14, 1998; IEEE Nuclear Science Symposium Conference Record; pages 1170-1174; XP001146665; Toronto, Ont. Canada
	3	JP 08-243100 A; 24 September 1996; AZEMOTO, S. & Patent Abstracts of Japan; Vol. 1997; No. 01; 31 January 1997
	4	JP 09-154838 A; 17 June 1997; TAGUCHI, T. & Patent Abstracts of Japan; Vol. 1997; No. 10; 31 October 1997

**EXAMINER** \_\_\_\_\_ **DATE CONSIDERED** \_\_\_\_\_

**\*EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Equivalent to Form PTO-1449

Patent and Trademark Office\*U.S. DEPARTMENT OF COMMERCE

PAGE 1 OF 1